(7) It does not have a cockpit greater than 20 percent of the Length Over Deck; and

(8) If equipped with a cockpit and operating on Partially Protected Waters, the cockpit must be self-bailing.

(b) The vessel may undergo the simplified stability proof test detailed in §178.330 of this part, in the presence of a Coast Guard marine inspector, if it does not have tumblehome at the deck, measured amidships, that exceeds 2 percent of the beam.

(c) The cognizant Officer in Charge, Marine Inspection (OCMI) may perform operational tests to determine whether the vessel has adequate stability and satisfactory handling characteristics under sail for protected waters or partially protected waters.

(d) The Commanding Officer, Marine Safety Center, may prescribe additional or different stability requirements for a broad, shallow draft vessel with little or no ballast outside the hull.

[USCG–2007–0030, 75 FR 78088, Dec. 14, 2010]

### §178.330 Simplified stability proof test (SST).

(a) A vessel must be in the condition specified in this paragraph when a simplified stability proof test is performed.

(1) The construction of the vessel is complete in all respects.

(2) Ballast, if necessary, is in compliance with §178.510 of this part and is on board and in place.

(3) Each fuel and water tank is approximately three-quarters full. Any sewage tank should be either empty or full.

(4) A weight equal to the total weight of all passengers, crew, and variable loads permitted on the vessel is on board and distributed so as to provide normal operating trim and to simulate the vertical center of gravity, causing the least stable condition that is likely to occur in service. The assumed weight per person of passengers and crew must be representative of the passengers and crew on board the vessel while engaged in the service intended. Unless the cognizant Officer in Charge, Marine Inspection (OCMI) permits or requires the use of other values in writing, weight and vertical center of gravity are to be assumed as follows:

(i) The weight of primary lifesaving equipment should be simulated at its normal location, if not on board at the time of the test.

(ii) The assumed weight per person is determined as provided by §170.090 of this chapter.

(iii) The weight and associated vertical center of gravity of variable loads must be included as appropriate for the service intended and documented in the stability information required by subpart B of this part.

(iv) The vertical center for the total test weight must be at least 30 inches (760 millimeters) above the deck for seated passengers, and at least 39 inches (1.0 meter) above the deck for standing passengers.

(v) If the vessel carries passengers on diving excursions, the total weight of diving gear must be included in the loaded condition and placed in its stowed position. Not less than 80 pounds (36.3 kilograms) should be assumed for each person for whom diving gear is provided.

(vi) On vessels having one upper deck available to passengers above the main deck, the weight distribution must not be less severe than the following:

Total Test Weight (W) = _____
Passenger Capacity of Upper Deck:

---

Weight on Upper Deck = (Number of Passengers on Upper Deck) * (Wt per Passenger) * 1.33
Weight on Main Deck = Total Test Weight − Weight on Upper Deck.

(5) All non-return closures on cockpit scuppers or on weather deck drains must be kept open during the test.

(b) A vessel must not exceed the limitations in paragraph (d) of this section, when subjected to the greater of the following heeling moments:

$M_p = (W) (B_p)/6$; or

$M_w = (P) (A) (H)$

Where:

$M_p$ = passenger heeling moment in foot-pounds (kilogram-meters);

$M_w$ = Wind heeling moment in foot-pounds (kilogram-meters)

W = the total weight of persons other than required crew, plus the personal effects of those persons expected to be carried while aboard the vessel (total test weight) in pounds (meters);

$B_p$ = the maximum transverse distance in feet (meters) of a deck that is accessible to passengers;
A = Area, in square feet (square meters), of the projected lateral surface of the vessel above the waterline (including each projected area of the hull, superstructure, cargo, masts, area bounded by railings and canopies, but not protruding fixed objects such as antennas or running rigging).

(c) For sailing vessels the heeling moment used for this test must be the greater of the following:

(1) Passenger heeling moment from paragraph (b) of this section.

(2) Wind heeling moment from paragraph (b) of this section.

(3) Wind heeling moment calculated from the wind heeling moment equation in paragraph (b) of this section, where:

$M_w$ = wind heeling moment in kilogram-meters (foot-pounds);
P=4.9 kilograms/square meter (1.0 pounds/square foot) for both protected and partially protected waters.
A=the windage area of the vessel in square meters (square feet) with all sails set and trimmed flat;
H=height, in meters (feet), of the center of effort of area (A) above the waterline, measured up from the waterline; and

(d) A vessel must not exceed the following limits of heel:

(1) On a flush deck vessel, not more than one-half of the freeboard may be immersed.

(2) On a well deck vessel, not more than one-half of the freeboard may be immersed, except that, on a well deck vessel that operates on protected waters and has non-return scuppers or freeing ports, the full freeboard may be immersed if the full freeboard is not more than one-quarter of the distance from the waterline to the gunwale.

(3) On a cockpit vessel, the maximum allowable immersion is calculated from the following equation:

(i) On exposed waters—

$$i=f(2L–1.5L')/4L$$

(ii) On protected or partially protected waters—

$$i=f(2L-L')/4L$$

where:

i=maximum allowable immersion in meters (feet);
f=freeboard in meters (feet);
L=length of the weather deck, in meters (feet); and
L′=length of cockpit in meters (feet).

(4) On an open boat, not more than one quarter of the freeboard may be immersed.

(5) On a flush deck sailing vessel, the full freeboard may be immersed.

(6) On a non-sailing flush deck catamaran that is propelled by mechanical means, not more than one-third of the freeboard or one-third of the draft, whichever is less, may be immersed.

(7) In no case may the angle of heel exceed 14 degrees.

(e) The limits of heel must be measured at:

(1) The point of minimum freeboard; or

(2) At a point three-quarters of the vessel's length from the bow if the point of minimum freeboard is aft of this point.

(f) When demonstrating compliance with paragraph (d) of this section, the freeboard must be measured as follows:

(1) For a flush deck or well deck vessel, the freeboard must be measured to the top of the weatherdeck at the side of the vessel; and

(2) For a cockpit vessel or for an open boat, the freeboard must be measured to the top of the gunwale.

(g) A ferry must also be tested in a manner acceptable to the cognizant OCMI to determine whether the trim or heel during loading or unloading will submerge the deck edge. A ferry passes this test if, with the total number of passengers and the maximum vehicle weight permitted on board, the deck edge is not submerged during loading or unloading of the vessel.

[CGD 85–080, 61 FR 966, Jan. 10, 1996; 61 FR 20557, May 7, 1996, as amended at 62 FR 51356, Sept. 30, 1997; 62 FR 64306, Dec. 5, 1997; USCG–2007–0030, 75 FR 78088, Dec. 14, 2010]

### § 178.340 Stability standards for pontoon vessels on protected waters.

(a) A pontoon vessel meeting the applicability requirements of § 178.320 of this part must be in the condition described in § 178.330(a) of this part when the PSST is performed, except that fuel, water and sewage tanks should either be empty or filled to 100 percent capacity, whichever is more conservative.